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The JOURNAL of GEOGRAPHY

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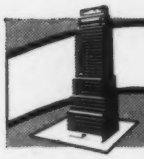

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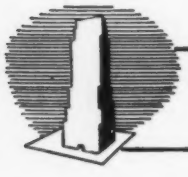

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The JOURNAL *of* GEOGRAPHY

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VOLUME XLIX MARCH, 1950 NUMBER 3

OVERCOMING UNDESIRABLE INFLUENCES OF INFORMAL EDUCATION*

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University of Chicago

THE MEANING OF THE TITLE

The title of this paper is an implied question: What can we do in our instruction in geography to help young people overcome undesirable influences of informal, or out-of-school, education? There is no implication in this question that out-of-school education is on the whole undesirable. We all realize that human progress depends on it to an immeasurably large degree. Indeed, the major purpose of formal, or school, education is to help youths develop those viewpoints, that sense of values, and those abilities, powers, and desires which will lead them to guide their own informal education into channels from which will flow outcomes of great worth. Nevertheless, until one learns how to guide his own informal education into such channels (and I wonder how many graduates of our schools and colleges have learned to do so) some of the outcomes of such education are to be deplored and it is those outcomes with which the title question is concerned. We cannot prevent the undesirable results because many of the experiences from which they stem are inherent in circumstances not under our control. In our geography teaching, however, it is at least possible, tho by no means easy, to help minimize the very harmful effects of some of them.

Among the unfortunate outcomes of early informal education, perhaps none is more deplorable than are erroneous ideas about other people and peoples and the prejudices and wrong attitudes which grow out of those ideas. Such attitudes constitute obstacles that stand squarely in the way of bettering present intercultural relations: and the bettering of those relations is of tremendously

* Presented at the Cleveland meeting of the National Council of Geography Teachers, November, 1949.

vital import to humanity today. In this brief paper, discussion will be centered on ways in which we can help, thru instruction in geography, to minimize the undesirable effects of unfortunate attitudes toward other peoples.

Early Informal Learning

Knowing one's adversary always is helpful in contending with him. Accordingly, in order to see clearly what we can do, we need first of all to recall some facts about the learning processes involved in early informal education. As we are all aware, one's informal education commences, practically at birth, when his brain begins to function. By attention he gives to sounds, by observation of people and objects in his surroundings, by imitation of people he sees and hears, by discovery of pleasurable or painful consequences of his own acts, by asking questions, listening to answers, and the like, he gradually develops his innate powers. He learns to call people and objects by given names, thus beginning to acquire a vocabulary. Thru oft repeated efforts to do what others do, he gains muscle-coordinating ability enabling him, for instance, to walk, to run, to sing and so on. He forms habits of reacting in given ways to given types of stimuli, and he acquires a fund of simple ideas and the ability to express many of them orally in sentence form. Tho he achieves such development gradually, step by step, he does so with such rapidity that by the time he first reaches what we think of as school age, he already, thru wholly informal education, is a relatively accomplished young citizen accomplished, i.e., considering the few years he has been developing. Regardless of whether he is, for instance, a young Clevelander or a baby Korean, the same general learning processes have been involved in his development. With regard to specific vocabulary and various special abilities and ideas, however, results of early informal education are as different as are the people and objects in one's surroundings. The specific nature of much of what one acquires in those early years hinges on the experiences he *chances* to have in the particular locality and home in which his development has taken place. It is important in connection with this discussion to note both the common elements and this *chance* element in informal education. It also is important to note that, as is abundantly clear from its results (be they of great value or deplorable), informal education is exceedingly potent education. It really functions. The learning involved is what some educators call "organic" learning, to differ-

entiate real learning from learning of what I sometimes call the "cosmetics" type because it is veneer, not even skin deep. It washes off, and, lo!, the freckles and wrinkles are still there.

Now one significant fact which we often overlook helps to account for the potency of informal education: simple *reasoning* plays a vital part in one's acquisition of many, if not most, of the ideas he gains in the course of his early informal development. A four-year-old, for instance, made, with obvious conviction, the sudden announcement, "Children in our block like me better than they do Mary or Helen or Rose." "Who told you so?" her mother asked. The child acted surprised by the question and replied, "Why, nobody did. I know from what they do." Clearly her conclusion was one involving simple reasoning based on what she considered accurate findings from actual observation. I repeat. Simple logical reasoning plays a vital role in informal education.

The Natural Method of Learning

It seems a big jump to consider next some of the learning processes involved in gaining geographic knowledge of the type which Doctors of Philosophy are trying to discover thru scientific research: but to think briefly of those processes at this juncture and to compare them with the learning processes we have just noted will help us to see how to answer the title question. Many of the basic data which a research geographer uses are data he gets from direct observation of people and of objects to be seen in the particular locality about which he is, at any given time, seeking to discover truths. Geographic research always involves either direct field observation or the use of data which have been accumulated and recorded by an earlier direct observer. Such research also involves interviews with people in the area which is being studied. Answers which residents of the area give to questions asked them by researchers constitute part of the data on which conclusions reached thru research work are based. Because some of the facts discovered by observation cannot be adequately expressed in words, many of them are recorded in maps. Conclusions (1) about the nature of the complex of human beings, of man-made features (both visible and invisible), and of natural features which give the locality under consideration its geographic character and individuality, and (2) about the intricate interrelations existing between elements in that complex are reached thru reasoning based on the recorded data the researcher has accumulated. It is obvious that, with the exception

of the recording of facts in the form of maps, learning processes involved in discovering, thru research, new geographic truths are much like those involved in early informal education. Both involve learning from direct observation and from answers to one's questions; both involve reasoning based on the facts thus discovered; and both result in conclusions in the form of generalizations, arrived at thru that reasoning. Clearly, learning processes in both constitute what we may call the *natural* method of learning.

One Part of the Answer

From foregoing considerations, *one part* of the answer to the title question seems evident in view of (1) the naturalness and great potency of informal education and (2) the fact that scientists employ natural learning processes, thus reflecting belief in the efficacy of the natural learning method: *in our geography classes, we need to provide the kinds of experiences which give young people the opportunity to learn as naturally and as effectively as they learn from out-of-school experiences.* We need to keep ever in mind that teaching, if it be real teaching, is guidance in learning, as contrasted with pouring out results of the learning of others in the hope that they somehow will be digested. The learning always has to be done by the individual who is "being taught." Memorizing and repeating generalizations and facts on which they are based are not synonymous with real learning. One of the saddest commentaries on geography work in our schools and colleges is one which I hear repeatedly from graduate students. In effect it is, "I didn't even begin to realize clearly what geography is really getting at till I did the work for my thesis." I hasten to add that I am not advocating fourth-grade theses, but I am pleading for giving youths opportunity at every level of instruction to do real learning by employing natural, common-sense learning processes, instead of withholding such opportunity from them (as we are wont to do) until they reach a graduate level of instruction.

A Second Part of the Answer

As was stressed in the first sentence of the preceding paragraph, only a *partial* answer to our title question is furnished by consideration of learning processes involved in geographic study. *Merely* to provide for our youths experiences which let them learn by natural processes may result in as many erroneous ideas and prejudices as result from informal education. Sad to relate, it is not

difficult to find geography classes in which such experiences *are* being provided, but with the result that misunderstanding of other peoples is being increased, not decreased. We need to note two great *differences* between informal learning and geographic research which give us a clue to something *else* we must do if we are to help young people correct such wrong ideas of other peoples as they commonly gain from informal educational experiences.

One great source of unfortunate outcomes of informal education is the fact that only a few of the many data which must be taken into account in reaching correct conclusions are gathered in the course of the particular learning experiences one may *chance* to have. Wrong ideas frequently are acquired, and unfortunate conclusions reached, not because the learners did not reason accurately, but because they reached those conclusions from consideration of only part of the pertinent data. I can well remember, for instance, that by the time I was seven or eight years old I had arrived at the reasoned, tho erroneous, conclusion that something was clearly wrong with anyone who was a Democrat. That conclusion amounted to such firm conviction and prejudice that I even looked askance on classmates whose fathers were Democrats. It had been reasoned out on the basis of certain facts I had chanced to observe. First I had observed that my father and grandfather seemed always to try to take part in the praiseworthy affairs in the community. They often commented, "We must help out with that if we can. It is in a good cause." I also noted that time after time they took part in Republican affairs but did not take part in Democratic ones. I submit that, in so far as those facts go, my reasoning was logical; I reached my unfortunate wrong conclusion because the data on which I based it were entirely inadequate. I did not even know what Democrats and Republicans were. (As an aside I might inject that I am not sure I know today.)

In contrast, one who is qualified to do scientific research is fully aware of the danger of reasoning based on insufficient data, and exercises great care to avoid such reasoning and to qualify his conclusions in the light of that awareness. It is true that some geographic generalizations which once were thought to be demonstrable truths have now been discredited because new data bearing on them have come to light since they were made. Doubtless some that now are believed to be truths will prove not to be such as pertinent data not now available accrue. Thus basic knowledge grows. Research workers, however, conscious of this possibility of

error, are eager to change their conclusions on the basis of significant new data.

We must pattern after research, not after informal education, in this matter. *We need to give young people abundant experiences of kinds which help them to discover fallacies in conclusions they have reached thru reasoning based on insufficient data.* What outcome of geographic study could be of greater value to humanity than the habit, on the part of our citizenry, of withholding snap judgments? In connection with helping students develop that habit, it is well to bear in mind that, as intimated in earlier discussion of processes of learning involved in informal education, one learns to avoid repeating those actions which result in unpleasant consequences and to repeat those resulting pleasantly and calling forth commendation. It was R D Calkins, if my memory serves me correctly, who told of giving young people in a geography class some experiences which led them naturally to wonder how the Teachers College had come to be where it is in Mount Pleasant. He asked if they thought they could discover for themselves facts which in their opinion would help them reach some conclusions concerning the matter. They wanted to try, and came back with facts about location, transport, terrain, and the like. After they had stated and informally discussed their conclusions, he told them they hadn't mentioned one simple fact. It was that in a certain year, Mr. X had given to the public the particular site on which the institution stands with the express condition that the site be used for a normal school. Of course, the students saw at once that consideration of the added fact necessitated altering their conclusions. The incident left them with a somewhat sheepish feeling they didn't wish to have recur. Accordingly, they tried to avoid premature conclusions *for a few days thereafter* in their geographic thinking. Had they themselves, on the other hand, "dug up" that fact in the first instance, and been commended for so doing, the pleasurable results would have encouraged them to be on the lookout for similar facts in further investigative ventures. The significance of stressing "for a few days" should be noted. One can't overcome a habit of making premature judgments by one or two or three experiences helpful in so doing, or by being told the habit is bad.

To cite another specific instance, a sixth grade boy who had visited a particular locality being studied in his geography class reported his belief that practically all the automobile drivers there were careless, and in support of his conclusion cited instances of

their repeated violation of a given "rule of the road"—instances which he had observed with his own eyes. He was sent to a librarian who helped him find out about traffic regulations in that locality. He discovered to his dismay that it was his father, not the residents of the locality, who had done the violating. Tho a law-abiding citizen, the father had assumed that regulations were those familiar to him. Doubtless *that* boy thought *at least twice* before he made another such false generalization because it was unpleasant to be faced with the need for retracting his sweeping statement of condemnation of others.

The point to be made by calling attention here to such instances is that, altho no scolding or preachment suffices in such cases, *very frequently in our classroom work, opportunities arise for leading young people to alter for themselves conclusions based on insufficient data by directing them to significant data which they had overlooked. We must be constantly on the lookout for such opportunities and, by taking advantage of them, help the young learners gradually to overcome in so far as possible the common unfortunate habit of reaching conclusions prematurely.*

A Third Part of the Answer

Consideration of a second major difference between informal education and research leads us to see still another part of the answer to our title question. It relates to one's realization of clear-cut, guiding motive or purpose. In the course of one's early informal education, he learns whatever momentarily catches his attention and fancy. For the most part he does not consciously or deliberately seek a particular kind of knowledge. In geographic research, on the other hand, one knows what kind of knowledge he seeks, and deliberately centers his efforts on collecting such data as may have a bearing on discovery of truths of the type which, together, constitute knowledge of that kind. Again, we teachers of geography must pattern after research, not after early informal education in this matter. It may seem ridiculous to say that little people can have such motive and purpose, but they can. It so happens that many data which geographers use are such as to satisfy curiosity commonly felt by human beings, young and old, concerning differences to be observed in different parts of the earth. Much travel for pleasure, for instance, is motivated in part by such curiosity. If children are shown in *carefully selected pictures* of landscapes in Java, for instance, some of the significant man-made features in

the "complex of people, man-made features and natural features" which give that part of our earth its geographic character, individuality or personality, they are naturally interested in observing for themselves differences between what they find there and what they have seen elsewhere: nor do they stop with "whats" unless they already have had their natural learning tendencies greatly inhibited by a multitude of classroom experiences of the "read-the-next-two-pages-and-recite" type. It was, indeed, a fourth-grade boy who gave me years ago my first inkling of the fact that real learning in geography, at *all* levels of instruction, "parallels" research learning. From facts he gleaned from pictures of Java settlements and a map showing closeness of some of the settlements, he arrived at the conclusion that people were more crowded together there than in any other farming region which he had seen, either actually or in pictures. He asked almost instantly after stating his conclusion, "How does it happen that so many farmers live in such small spaces here?" That very night, it so happened that I heard Ellen Semple, a famous American research geographer, talk at the Geographic Society of Chicago. She began her address by saying that the density of population in Java was something she had never been able to understand to her satisfaction. She accordingly had just devoted a considerable period of time to research there in an effort to discover facts contributing to better understanding of that characteristic of the area. She reported findings which aided her in seeing how that characteristic had developed there; how intricately interrelated were the elements in the "complex of people, man-made elements, and natural elements" which distinguish Java from other regions; and how the work of the people there is functioning in their community and in the world. If initial stimuli (in the form, for instance, of *properly selected* pictures) be provided, children's curiosity moves them to have at once the same general kind of motive and sense of purpose which a research geographer has, even tho they do not recognize it as "geographic purpose" as does the researcher. It is impossible to overestimate the tremendous importance in teaching geography of the very difficult task of providing in each unit initial stimuli and experiences which lead pupils or students at once to have a specific end in view from the outset—an end which is a *geographic* one, whether or not they recognize it as such. *Proper selection of motivating, goal-setting experiences in every unit is a very vital part of the answer to our*

title question. To make proper selection is one of our great challenges as teachers. It involves knowing in advance ourselves the specific major ideas and conclusions which the learners should arrive at in pursuing their initial geographic purpose.

DIAGNOSTIC QUESTIONS

In a brief paper it is impossible to go much further with answering the title question than the discussion of need for "natural" learning experiences, for experiences helpful in learning to refrain from making premature judgments, and for careful selection of motivating experiences has taken us. It would be helpful to discuss each of the research-guiding questions, for instance, which Dr. Platt lists in one of his recent articles,* and note their counterpart in classroom work, but such discussion would require more than one brief paper. Instead, we can list some questions to ask ourselves that will help each of us (myself included) improve our own classroom work.

How clearly do I have in mind, *before* I select motivating experiences I provide in any given unit, what geographers have discovered about how the various types of elements in the geographic complex of the locality to be studied are interrelated?

What opportunity am I giving youths in my class to discover from observations of real or pictured landscapes facts of significance (1) in motivating desire to understand that particular local complex and (2) in gaining understanding of it which is correct as far as it goes? (No one, of course, has *complete* understanding of how present geographic complexes have come to exist.)

How much am I letting young learners ask questions concerning significant things they observe about the locality to be studied *before* they do any reading or hearing about the people and other features observed other than reading or hearing sentences which merely introduce the locality by its name and general location?

If questions they ask from initial observation are not those manifesting clear-cut geographical motive and purpose, what is wrong with the selection of the introductory material designed to provide motivating experiences?

Am I saying time after time in answer to their questions, "Perhaps you can find on page x facts which are helpful in answering your questions," thus helping them develop the habit of "in-

* Platt, Robert S., "Environmentalism versus Geography," *The American Journal of Sociology,* Vol. LIII, No. 5 (March, 1948), p. 356.

terviewing," as it were, authors; of "asking the map" and the like?

Am I giving opportunity for informal discussion by the class members of their findings from observation and "interviewing"?

Am I giving them opportunity to reach conclusions based on those findings and grasping opportunities to let them discover that false conclusions are reached by reasoning from insufficient data?

Am I vainly expecting them to develop from scattered ungraded experiences a functioning geographic point of view and skills and habits involved in using pertinent facts effectively, or am I recognizing the repetition element in the natural learning process and meeting their need for unit after unit of carefully graded experiences?

Are the young people under my guidance just "covering" material or are they learning to apply almost instinctively, as it were, a geographic point of view to new situations?

To what degree, in short, am I providing learning experiences as natural as those involved in informal education and in research, the while I am eliminating the chance element in informal learning? (If we are not to eliminate the chance element, if the passing whims of children are to shape the curriculum, why have schools at all?)

Now, if we make honest answers to such questions, none of us (myself included) will have cause to be very proud of his answers: but each of us will be moved, I believe, to improve his teaching and be gradually able to take more and more legitimate pride in its outcomes.

The Answer in Brief

The answer to our title question can be stated briefly in another way. If and when we teach geography at every level of instruction as the unified observational science which it is, we cannot fail to help overcome many of the undesirable influences of informal education. We cannot fail to help young learners develop a geographic point of view that will be of enormous value to them in themselves guiding their informal education into channels from which flow worthy outcomes such as better and better understanding of different problems people face in different localities.

Progress

As various relatively recent published articles indicate, we are making headway in giving the right kinds of guidance in learning

—notice that I say "guidance in learning" instead of "teaching." Clearly, for instance, headway has been made in the very city in which we are now meeting: articles such as those of Miss Villa Smith and Mrs. Adelaide Blouch, to give only two examples, are evidence of that progress. Our motto, I feel certain, is "Onward." With our will we will bit by bit find the way.

MAP KNOWLEDGE FOR GRADE SCHOOL GEOGRAPHY TEACHERS

LYDA BELTHUIS
University of Minnesota, Duluth Branch

In instructing grade school children, a teacher stresses certain materials which are considered fundamentals. In arithmetic, the multiplication tables are the background for all later work; in reading, the recognition and sounds of letters and the use of words and sentences are the basis of development. In geography, one of the subjects which involves reading ability, there are still other requirements for effective teaching and learning. One of these is an understanding of the map, the most important tool in interpreting the printed page. Many grade school teachers learned but little about maps in courses they have had. To help such people, a few important facts about maps and their use are suggested below. These may be used as a list against which instructors may check their knowledge.

GLOBES AND PROJECTIONS

A globe is the only true model of the earth.

All projections are man-made devices to show part or all of the earth's surface on a flat plane in as accurate a way as possible for the purpose intended.

CLASSIFICATION OF PROJECTIONS*

For general presentation purposes, projections are usually classified as three groups—rectangular or cylindrical, conic, and azimuthal.

1. The cylindrical or rectangular projections are constructed on the principle, but not the actual plan, of wrapping a sheet of paper

* An inexpensive publication giving illustrations and descriptions of projections discussed in this paper is Hammond's *Comparative World Atlas*, 1947, Desk Edition.

about the globe with the line of contact being the only correct part unless, as is usually the case, other means are used to reduce this error.

2. Conic projections are based on the idea of placing a cone over the globe touching on some parallel which is the only correct part. Conic projections with two standard parallels, in contrast to one, make a fairly accurate map of an area having general east and west extent.

3. Azimuthal, or perspective projections as they are sometimes called, are projected on a plane surface and are classified as orthographic, stereographic, and gnomonic according to the place or eye point from which the projection is made. If this point is at infinity, the projection is an orthographic; if at the antipode, it is stereographic; if at earth center, it is gnomonic. They are developed as polar, equatorial, and oblique cases with maps centered respectively at the poles, the equator, and at any point between the equator and poles. A projection of this group which has been used widely recently for air-age maps is the polar equidistant one.

MAP CHARACTERISTICS

Maps have several properties. Two of the more important for general use are equivalency (equal-area) and conformality (true shape). Maps having the characteristic of equal area are used for plotting distributions such as acreages of wheat in various parts of the earth. Conformal maps are important for school use as they show the true shape of continents.

FAMILIAR OR COMMON PROJECTIONS

1. The Mercator is true in area only at the equator while poleward the exaggeration of area becomes greater and greater. Its major value is for navigation purposes because routes can be plotted as a series of straight lines on the map and compass direction be maintained.

2-3. Goode's Homolosine and Modified Sinusoidal are two of the better projections for world maps. They are equal-area in construction yet give the appearance of conformality.

4. Bonne's, an equal-area projection, is used much on European maps for continents and also by American map makers to some extent for the same purpose.

5-6. Lambert's Conformal and Alber's Equal-Area as their

names indicate are respectively conformal and equal-area projections which are being used much for maps of United States. Each of these has two true scale parallels and a maximum error of a few per cent.

7. The Polyconic projection serves as a base map for the United States topographic sheets. Topographic sheets are detailed maps showing elevation differences by means of contour lines and commonly having a one inch to one mile approximate scale.

8. Others

a. The International Map of the World is a detailed map on a modified polyconic projection which has a scale of 1 inch to 16 miles. When completed it will include a total of about 1500 sheets.

b. Aerial photographs when taken vertically at a scale of 1:20,000 or larger, show in detail both natural and man-made features.

MAP SCALES

Scales represent a ratio between map distance and ground distance and are shown on maps in three different ways. These are (1) the representative fraction which uses the ratio of an inch on the map to inches on the ground as 1:63,360; (2) verbal which is written on the map as "one inch to one mile;" and (3) the graphic scale, the familiar line and its divisions denoting distances on the map. These scales can be converted readily from one to another. They appear both as exact (1:63,360) and approximate (1:62,500) scales. In some cases, as in Goode's Atlas and some wall maps, all three types are given on a single map.

MAP LEGENDS

Legends consist of a series of standard symbols which are found on all maps. They show both man-made features such as roads, railroads, and cities, and also those of nature as surface differences, drainage, and others.

COORDINATES

Parallels of latitude and meridians of longitude, commonly called coordinates, are used for location purposes. They may be used for obtaining an approximate scale if none is given on a map. Scales may be computed by using the value of a degree of latitude or by determining that of a degree of longitude thru the use of tables giving such information.

SOURCES FOR EQUIPMENT AND SUPPLIES

Many materials are available thru well known publishing and supply houses. Others may be obtained from our government agencies thru the Superintendent of Documents and from representatives of other countries stationed here.

There are two ways by which the reader who may be interested in securing additional map knowledge may proceed. First thru reading about maps. If this plan is chosen, some of the following publications may be of aid:

Raisz, Erwin, *General Cartography,* McGraw-Hill, (2nd ed.), 1948.

Lobeck, A. K., and Tellington, Wentworth J., *Military Maps and Air Photographs,* McGraw-Hill, New York, 1944.

Peattie, Roderick, *How to Read Military Maps,* George W. Stewart, Publisher, New York, 1942.

Deetz, Charles, and Adams, Oscar S., *Elements of Map Projections,* Special Publication No. 68, (5th ed.), U.S. Dept. of Commerce, Coast and Geodetic Survey, 1945.

Deetz, Charles, *Cartography,* Special Publication No. 205, (2nd ed.), U.S. Dept. of Commerce, Coast and Geodetic Survey, 1943.

Olson, Everett C., and Whitmarsh, Agnes, *Foreign Maps,* Harpers, New York, 1944.

Carls, Norman, *How to Read Aerial Photographs for Census Work,* U.S. Dept. of Commerce, Bureau of the Census, Washington 25, D.C., 1947.

Smith, H. T. U., *Aerial Photographs and Their Applications,* D. Appleton-Century Inc., New York, 1943.

Musham, H. A., *The Technique of the Terrain,* Reinhold Publishing Corporation, 330 W. 42nd St., New York, 1944.

Hoffmeister, H. A., *Construction of Map Projections,* McKnight and McKnight, Bloomington, Ill., 1946.

The second way to learn more about maps is by taking a course which stresses map and visual aid information and other geographic knowledge a teacher needs. It may be listed as "Geography for Teachers" or have a similar title and is available in some colleges and universities.

With aid from either of these two sources, a teacher can really understand a map and may help a child to know more about it.

PHYSICAL GEOGRAPHY OF THE KUNMING BASIN, YUNNAN PROVINCE, CHINA

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GENERAL SETTING

The Kunming Area includes a large intermontane lake basin and its bordering highlands in eastern Yunnan province, southwestern China (Fig. 1). This is one of a number of similar basins of tectonic origin characteristic of Yunnan, the majority of which were occupied by lacustrine waters during the relatively recent geologic past, but have since been drained. The Kunming basin, containing lake K'un-yang, still retains a portion of its original water body. Other intermontane lakes, including Fuhsien Hai, Yang-tsung Hai, and Chilu Hai, are present in smaller basins located to the east and south of the Kunming basin (Fig. 2).

The rugged topography which characterizes Yunnan province places mountain barriers and deep, often impassable valleys across all approaches to the Kunming basin. These physical obstacles have prevented the development of adequate communications with surrounding regions. Consequently, the area has occupied an isolated position until very recent time. Prior to World War II this portion of China received only spasmodic domestic and foreign attention. Thruout the latter half of the 19th century and early decades of the 20th century attempts were made by French and British interests to gain a foothold in the province. The French completed in 1910 a narrow-gauge railroad from the French Indo-China coast at Haiphong to the provincial capital, Yunnan-fu, located in the Kunming basin (Fig. 1). The British had access to the area in the decade preceding the last war by means of the Burma Road, but this route has proved economically feasible only under wartime pressure. Early Chinese interest, stimulated for brief periods by the presence of mineral deposits, was hampered by the remoteness of the area. The difficulty of communication with the rest of China has prevented large scale exploitation of valuable natural resources by the Chinese government.[1]

The attention of western powers was drawn to this region during the recent world conflict with the recognition of the strategic

[1] George B. Cressey, *China's Geographic Foundations—A Survey of the Land and the People*, McGraw Hill Book Company, New York, 1934, pp. 72, 107, 122-126.

importance of certain localities as bases for operation against the Japanese. The geographic isolation and defensibility of the Kunming Area, as well as other similar areas in western China, made these ideally suited for use as supply terminals for aiding the Chinese. The Kunming basin in particular provided ample space for development of a large air terminal. Furthermore, it is the

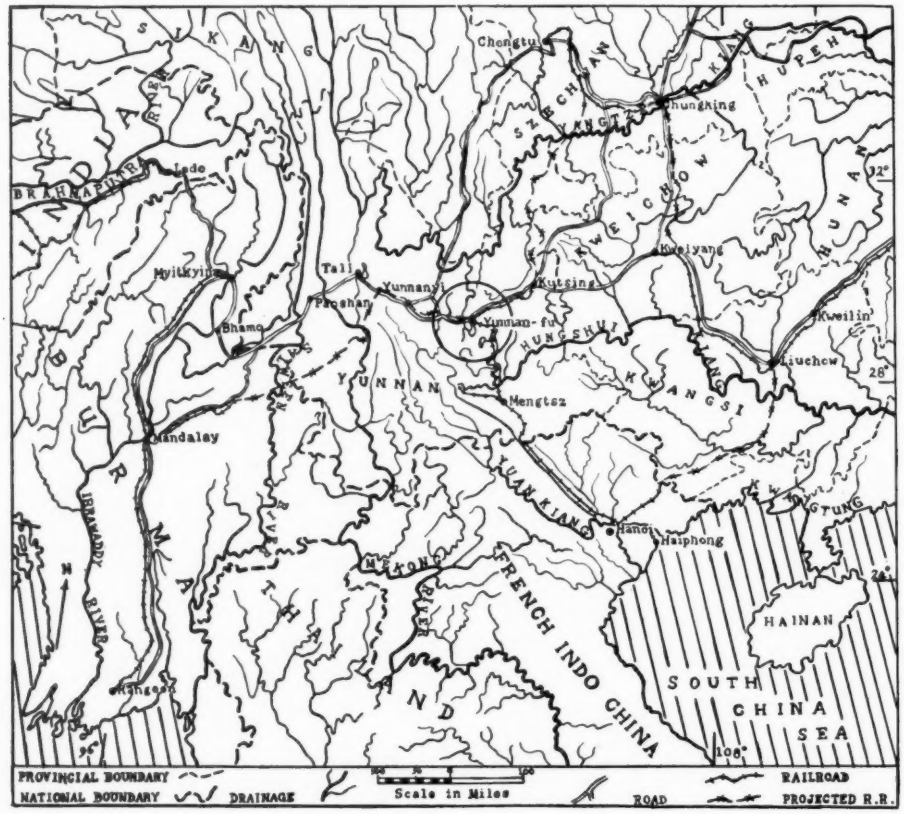


FIG. 1. Location of Yunnan Area.

eastern terminus of the Burma Road. Airfields were constructed, air routes charted, new roads built, and existing roads improved. Thus the war not only stimulated interest in the area, but it also resulted in marked improvement of facilities for communication with adjacent regions. The Kunming basin, the largest tract of habitable ground in the province, is the logical center for economic growth of the province. This paper is concerned with the physical factors which have aided the development of the Kunming basin as a distinct cultural unit.

LOCATION

The Kunming basin is located between latitudes 24° 38′ and 25° 4′ North and longitudes 102° 35′ and 102° 50′ East (Fig. 2). Rugged, deeply dissected, mountainous terrain separates the area from the valley of the Yangtze Kiang 80 miles to the north. The

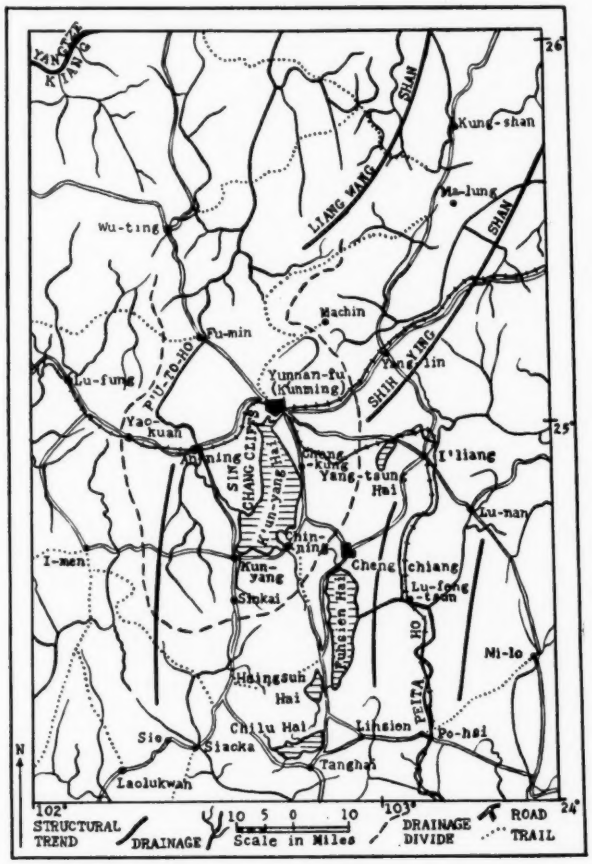


FIG. 2. The Kunming Basin.

Burma border lies about 250 miles to the west, the country in this direction being occupied by increasingly mountainous topography culminating in the southward continuation of the Himalaya arc along the valleys of the Salween and Mekong rivers. The Burma Road traverses this western approach to the basin. The French Indo-China border is located 150 miles to the south, the surface in this direction being rugged and dissected by deep valleys, notorious

as breeding places for disease. The distance from the basin to the French Indo-China coast is approximately 400 miles, the coastal city of Haiphong being connected to Yunnan-fu, principal urban center of the Kunming basin by the narrow-gauge railroad constructed by the French (Fig. 1). A road affords connection with Kweiyang in Kweichow province 270 miles to the northeast and a railroad leads from that city into southeastern China. Another road extends to Chungking, wartime capital of China, approximately 400 miles northeast in Szechwan province. These eastern and northeastern approaches are hampered by rugged topography, tho many of the roads have been recently improved.

CLIMATE

The climate is a subtropical monsoon type, the controlling factor being altitude rather than latitude.[2] The elevation of the lake basin is 6,400 feet, this altitude producing a more temperate climate than is normal for similar latitudes in southern Asia. According to Cressey[3] the average summer maximum is 26° C. and the average minimum temperature is 4° C. Thus the winter is quite mild and the summer is pleasantly cool. Seasons are more noticeably based on wet and dry contrasts than on temperature differences. The rainy season lasts from May thru October, the rainfall often being torrential. The yearly average recorded at Yunnan-fu is approximately 40 inches, practically all of which falls during the rainy season. The dry winters are characterized by strong southwesterly winds which locally reach considerable intensity, often resulting in dust storms where moisture and vegetation are scanty.

PHYSICAL SETTING

Topography. The floor of the basin is occupied by a relatively broad, elongate lacustrine plain with a longer dimension of approximately 35 miles in a north-south direction and a width of from 10 to 12 miles (Fig. 2). Lake K'un-yang, about 25 miles long and 5 to 7 miles wide, occupies the western half of this plain. The surrounding country is prevailingly mountainous with northeast-southwest trending limestone ridges projecting from 1,500 to 2,000 feet above the basin floor, rising in some localities to more than 8,000 above the sea (Fig. 3). One such particularly high ridge parallels the western

[2] Mei-Ngo Jen, "Agricultural Landscapes of Southwestern China: A Study in Land Utilization," *Econ. Geog.*, Vol. 24, No. 3, (July, 1948), pp. 158-159.

[3] Op. cit., Cressey, pp. 373-375.

edge of the lake, presenting an extremely precipitous escarpment known locally as the Sin Chang Cliffs (Fig. 4). This feature is a fault scarp showing little modification by erosional agencies. Faulting activity in this region dates from late Pliocene and it appears likely that faulting and regional uplift are still occurring at present.[4] A broad alluvial flat, slightly above the present lake level, separates the lake from mountainous ridges to the north, east and south (Fig. 5). Several remnants of lake terraces occur at eleva-

FIG. 3. Panorama of the Kunming basin from the eastern side. The high rimming ridges which delimit the basin are visible in the background. Note the hill terracing in dry paddy in the foreground.

tions from 10 to 100 feet above the present basin floor along the eastern side.

Drainage. The basin is drained from the southwestern portion by the P'u-to-Ho, a tributary to the Yangtze Kiang (Fig. 2). This single outlet passes thru the high escarpment formed by the Sin Chang Cliffs in a deep narrow valley. The stream flows westward and then northward to join the Yangtze Kiang. Other, more minor streams, dry during much of the year, drain into the basin from the surrounding highlands. The drainage in the high terrain around the basin has produced a karst topography in many localities.

A major drainage divide follows the crests of the high ridges east, south, and west of the basin (Fig. 2). The runoff east and south of this divide reaches the Peita Ho, tributary to the Hung-shu Kiang. Yangtsung Hai, Fuhsien Hai, and Chilu Hai all drain into the Peita Ho. The drainage west of this rimming divide is southward into the Yuan Kiang system. Within the basin drainage is northward into the Yangtze Kiang as mentioned above. There is ample evidence of stream capture in the region and the lake basins,

[4] Op. cit., Cressey, p. 36.

Fig. 4. View south along the Sin Chang Cliffs showing the precipitous nature of this fault scarp feature. Note the paddy-type cultivation in the small deltaic forms along the cliff base.

formerly enclosed systems, are now drained by captor streams.

An outstanding relief characteristic of this area is the great depth and extreme narrowness of the stream valleys. The P'u-to-Ho, for example, flows in a precipitous canyon, 2,000 or more feet deep in places. At the point of junction of this stream with the Yangtze Kiang the relief is in excess of 8,000 feet. The valleys of minor streams are also narrow and deeply excavated. The lake plain offers the only large tract of ground where a sizable population could exist, the area surrounding the basin being too difficult for normal habitation. The deeply incised drainage lines add to the physical isolation of the basin since they do not provide feasible locales for lines of communication.

Cultural Setting

This largest of the numerous lake basins of Yunnan province is a center of Chinese culture in a somewhat alien cultural setting. Similar Chinese cultural islands occur thruout the province where these lake basins are present. Chang[5] states that in Yunnan the region between 5,000 and 6,500 feet, where the climate is mild and the surface relatively level, is occupied by Chinese. Higher eleva-

[5] Chi-Yun Chang, "Climate and Man in China," *Annals Assoc. Am. Geogr.*, Vol. 36, No. 1, 1946, pp. 55-56.

tions are inhabited by more primitive cultural groups. The Chinese are migrants from other provinces, having pushed the former occupants of the basin areas into the intervening mountainous regions. The original inhabitants, mainly Lolo and Miao, occupy in general the higher mountain valleys and slopes around the basins. The latter live in quite primitive fashion as hill farmers and herdsmen and have distinctly different dress and dialect which set them apart from the Chinese of whom they are quite resentful.

All of the larger settlements located on the basin plain are distinctly Chinese in character. The four important urban centers, each located on a local deltaic feature along the shore of Lake K'un-yang, are Yunnan-fu (Kunming), Cheng-kung, Chin-ning, and Kun-yang (Fig. 2). These are now connected by good motor roads improved during the war. The walled character of the towns within the basin is a reminder of the rather precarious existence of the Chinese culture in a hostile setting. Yunnan-fu was a walled stronghold until quite recently, remnants of the old city wall being apparent in places around the perimeter of the city.

Due to the inadequacy of the Chinese census no positive figures

FIG. 5. View northeast from the Sin Chang Cliffs across Lake K'un-yang. The broad lacustrine flat is visible between the lake and the high rimming hills along the eastern side of the basin.

of population density are available. Jen[6] accepts a figure of 548 persons per square kilometer as an average population density in the cultivated portion of the basin. The same author advances a figure of 404,000 persons for Yunnan-fu. Wilton[7] in 1917 estimated that this city had a population of 100,000. Whatever the actual figures may have been, the recent war resulted in a manifold increase in the urban population, particularly in the latter city. No accurate figures concerning rural population increase are available at this time.

The cultural pattern of the basin plain is almost entirely agrarian, the basin floor being under heavy paddy cultivation. According to Jen[8], 49 per cent of the total area is in paddy, 11 per cent in dry field, 3 per cent in forest, and 37 per cent is unproductive. Since this survey included the steeper slopes of the basin sides as well as the lacustrine plain, the large percentage of unproductive land is explainable. It was the present writer's observation that the more moderate slopes and the higher terrace surfaces along the eastern side of the basin are quite heavily terraced in dry field locally, the land being utilized wherever possible. One interesting type of farm, evidence of the intensity of cultivation, is found on small deltaic protuberances of the lake shore, particularly along the base of the Sin Chang Cliffs along the west side of the lake. The writer was informed that this extremely wet type of farming is very productive and the owners of such farms are quite well-to-do, combining fishing with farming to great advantage. (Fig. 5).

An ancient irrigation system, reputedly dating back to the first Chinese settlement in the basin around 200 B.C., carries moisture from the eastern and northern rim across the lake plain. These irrigation lines make a very interesting geometric pattern in aerial view in that they are lined with poplar and bamboo (Fig. 6), as are also the roads and trails thruout the irrigated part of the basin.

Rice is produced in the paddy areas, whereas wheat and maize are the crops of the higher dry fields on the terrace remnants and on the slopes around the basin perimeter. The terrace levels, being well-drained areas, are often orchard sites, the basins of Yunnan being noted for the production of several kinds of fruit. In the village vicinities many kinds of vegetables are raised for urban use.

[6] Op. cit., Jen, p. 166.

[7] E. C. Wilton, "Yun-nan and the West River of China," *Geogr. Journ.*, Vol. 49, 1917, p. 427.

[8] Op. cit., Jen, p. 165.

These grow to remarkedly large size as a result of the "night soil" fertilization. It is interesting to note that Simpson[9] claims that Yunnan is probably the original home of the maize plant, this plant being found in the wild state in many portions of the province. This claim, however, is doubted in many circles.

FIG. 6. View showing lines of poplar which fringe the irrigation lines and roads thruout the lacustrine plain. The troops in this view were moving toward the French Indo-China border when the photograph was taken.

Tho the predominant farming traits are Chinese, the widespread usage of water buffalo as a farm animal is borrowed from Burma and India. This valuable beast abounds thruout Yunnan, being particularly useful wherever paddy cultivation prevails (Fig. 7). Oxen are also common, and the small Mongolian pony is used quite widely. Livestock raised for food includes pigs and chickens. In the surrounding hills herds of goats and sheep are common, the higher grass-covered slopes affording good pasturage. The grazing potential of Yunnan has not as yet been properly exploited.

The majority of the inhabitants of the lake basin profess Buddhism, numerous temples of this faith being found near every village

[9] A. R. B. Simpson, *Asia*, Bell and Sons, London, 1939, pp. 168-170.

and in many places high on the mountain slopes. Mohammedanism was once prevelant but has since been all but stamped out. The Mohammedan Rebellion, a religious war fought between 1856 and 1872, resulted in the almost complete annihilation of the Moslems. Ruins caused by this conflict are still observable in many localities within the basin. The estimate is made that 10,000,000 people were killed during this war thruout the province, the sparsity of population in some localities being attributed to such decimation. Christianity has been successful to a minor degree, particularly in the

Fig. 7. Small boy and water buffalo on the edge of rice paddy cultivation in the basin area east of Yunnan-fu. The highland rim along the northeast side of the basin is visible in the background. Note the poplars along the road in the left of the view.

Yunnan-fu vicinity. French Catholicism is perhaps foremost in this respect due to the greater ease of communication with French Indo-China. In general, however, the Christianizing influences have had little cultural effect.

Summary

The characteristic topography includes a broad expanse of lacustrine flat with slightly higher-standing terraces along the eastern and southeastern sides, the entire basin being rimmed all around by high rugged limestone ridges dissected by deep narrow valleys. The terrain immediately adjacent to the broad lake plain is typical of Yunnan province in general, in most places presenting a karst-like topography. This difficult terrain has resulted in geographic isolation of the Kunming basin from the rest of China. The inhabitants are mainly migrant Chinese, the older Miao and Lolo stocks having been driven into the adjoining highlands. The econ-

omy is predominantly agrarian, rice being the principal staple. Hence the basin forms a single cultural unit, Chinese in character.

This particular area afforded a base of supply for operations against the Japanese during the recent conflict. This factor has stimulated the economic development and has partially overcome some of the barriers responsible for isolation of the region. The establishment of airfields and the improvement of road connections with other parts of Asia have given the Kunming Area a much more important position in the Chinese economy than heretofore. A regular air service now connects with cities in Burma and India, bypassing the rugged terrain of the Burma border region. Airfields built during the war in various parts of western China are being utilized. The writer made trips over the improved Burma-Stillwell Road from Ledo, India, to Yunnan-fu, China, early in 1945. Tho this route is certainly no express highway, it is quite passable for heavy traffic provided continuous effort is applied to keep it in usable condition. The French railroad to Indo-China was not severely damaged by the warring powers and should provide an adequate and increasingly useful line of communication with the southern coast. Improved roads now connect the Kunming Area with Kweiyang and Chungking in Kweichow and Szechwan provinces to the northeast. A railroad leads from Kweiyang into southeastern China, tho this line sustained some war damage. Another has been projected for some years between Yunnan-fu and Mandalay in Burma. The writer observed tunnels and grading for this project in its proposed eastern portion between Yunnan-fu and Yunnanyi. Tho a costly venture and perhaps one of the world's most difficult engineering problems, this line is indispensable for proper economic development of southwestern China. This is a region of known mineral wealth and the betterment of communications will lead to more rapid exploitation of that wealth in the future. The Kunming basin will be the focal point of this economic activity.

ANNUAL MEETING OF THE THIRTY-FIFTH YEAR NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

More than four hundred members and guests of the National Council of Geography Teachers attended the meetings at Hotel Cleveland, Cleveland, Ohio, on November 25 and 26. Those registered included teachers from all grade and college levels of geography, supervisors, administrators, and others. More than seventy colleges and universities were represented, and more than thirty states and the District of Columbia were listed.

At the First General Session on Friday morning, Dr. Earl B. Shaw, President of the National Council, opened the meeting and presented Dr. John Schoff Millis, President of Western Reserve University. In extending greetings to the National Council, Dr. Millis emphasized the unique position of geography, since it can and should be both a centripetal and a unifying force. Dr. Harry O. Lathrop responded on behalf of the National Council.

Four papers were read—each of which proved thought and discussion. Professor Edith P. Parker presented the topic, "Overcoming Undesirable Influences of Informal Education," followed by Zoe A. Thralls with "World Patterns in High School Geography," and Lewis F. Thomas on "An Evaluation of Geography Teaching at the College, University, and Graduate Levels." The concluding paper was by Mary Viola Phillips on "A New Curriculum for High School Geography in Pennsylvania."

An open luncheon meeting of State Coordinators in the Empire Room was attended by one hundred thirty four persons. A State Coordinator and a distinguished guest acted as hosts at each table. With the theme of "Sharing Experiences," three State Coordinators read papers. Annice Davis Elkins of Kissimmee, Florida, told of "Resource-Use Education as a County-wide Project"; Joseph E. Williams of Seattle, Washington, read a paper on "Some Cartographic Activities in Teaching Geography," and Lyda Belthuis of Duluth, Minnesota, used her kodachromes of Australia to illustrate "Photography as an Aid in Teaching Reality."

On Friday afternoon, there were three sectional meetings.

At Section 1, the theme was "Working Together for Common Goals." About fifty-five people were present. Dr. George A. Mallinson, Western Michigan College of Education at Kalamazoo, read a paper on "The Relationship Between the Work of Elementary Science and Geography Teachers"; C. O. Fitzwater of the Rural Department of the N. E. A. outlined "Common Goals for Rural Educators and Geographers," and Clyde F. Varner of the Cleveland Board of Education spoke on, "The Relation of Geography to Other Social Studies and Physical Sciences in the Cleveland Schools." The spirited discussions resulted in recommendations that people from other related fields be invited to present papers on topics of mutual interest. The section chairman was Thomas F. Barton of Indiana University, and Merna Irene Fletcher of the University of Missouri was secretary.

At Section 2, the theme was "Trends in Geographic Visual Aids—The Motion Picture." About one hundred twenty-five people observed the showing of two films. Participants in the discussion were Minnie Lemaire of Mt. Holyoke College, Elizabeth Eiselen of Wellesley College, Edwin MacArthur representing the film producer, and Clyde Kohn, Northwestern University, who also was chairman. James Rinier of Kent State University as secretary reported the controversial nature of the discussion and evaluation of the films.

At Section 3, forty members of Gamma Theta Upsilon from fourteen chapters heard Dr. George Hubbard, Professor Emeritus of Oberlin College, talk on "Opportunities and Responsibilities for Students of Geography." Two students participated in the program: Miss Alta Baker of Bowling Green State University, Ohio, discussed suggestions for local group activities, and Miss Betty Heisner of Southern Illinois University at Carbon-

dale, talked on policies and programs for honorary members. The national president of the fraternity, Dr. Warren Strain of Slippery Rock, Pennsylvania, was chairman and Miss Ina C. Robertson of Valley City, North Dakota, was secretary.

By four o'clock the meetings had adjourned. Buses provided transportation along the outer lake shore drive to Hatch Hall at Western Reserve University. A large number of geographers accepted the invitation to the afternoon Tea, a courtesy of the Departments of Geography of Kent State University, Oberlin College, and Western Reserve University.

At the annual banquet on Friday evening, two hundred thirty-four were present. Dr. Shaw presided. Dr. George J. Miller, Editor of the JOURNAL OF GEOGRAPHY, announced the recipients of the two prizes conferred in 1949; the Isaiah Bowman Prize to Dr. James W. Coulter, Specialist, United Nations, for his article entitled "The United States Trust Territory of the Pacific Islands," and the Cora B. Sletten Prize to Miss Villa B. Smith of John Hay High School, Cleveland, for her article entitled "The Bulk Freight Trade of the Great Lakes."

The Distinguished Service Award citation was read by Thomas F. Barton in the absence of Mary Jo Read, chairman of the Committee. The award was presented by President Shaw to Miss Edith Putnam Parker in recognition of her leadership and outstanding contributions to geographic education and research.

The National Council was honored by the presence of Dr. Gilbert Grosvenor, President of the National Geographic Society, and Mrs. Grosvenor. Dr. Grosvenor related some of the outstanding achievements of National Geographic expeditions with emphasis on the one in 1949 to Nepal. Then Mr. Volkmar Wentzel, staff photographer and writer, supplied the commentary to accompany the showing of splendid colored films taken on the Nepal Expedition—one of the first scientific groups to enter the country. Following the program, there was an informal reception for the Past Presidents of the National Council and distinguished guests.

First Vice-President, Loyal Durand, Jr. of the University of Tennessee, presided at the Second General Session on Saturday morning. Papers centered on the theme, "Reports From the Continents." The speakers and topics were: Shannon McCune of Colgate University on "Confusion in Asia"; Samuel Van Valkenburg of Clark University on "Can Western Europe Meet the Postwar Challenge?"; Roderick Peattie of Ohio State University on "The Racial Problem of South Africa," and Langdon White of Stanford University on "Storm Clouds Over the Andes: The Sierra Indian Begins to See the Light."

The Third Annual General Assembly of the National Council was held Saturday afternoon with President Shaw in the chair. The Minutes of that session appear as the Secretary's Report elsewhere in this JOURNAL. The adjournment of the Assembly marked the close of the thirty-fifth annual meeting.

MINUTES OF THE THIRD GENERAL ASSEMBLY

At two o'clock on Saturday afternoon, November 26, 1949, more than seventy-five members of the National Council met to conduct the business of the Third General Assembly. President Shaw spoke of his appreciation to the members and officers who have worked untiringly on behalf of the National Council.

The Secretary reported on the activities of the office. The membership in the National Council shows a steady growth, with a paid-up membership in good standing of 1366. Twelve of the states

north of the Potomac-Ohio and east of the Mississippi account for 65 per cent of the membership. The Contributing Members total 75. Members designated as Fellow number 482 in 1949. During 1950, the status of Fellow for having attained five consecutive years of membership will be reached by 76 members. To each new member the Secretary sends greetings, a copy of the N.C.G.T. Constitution, and a card to survey interests and teaching level. Professional Paper No. 9 has been distributed widely. The appointment of State Coordinators has been completed with the exception of Montana (since filled). Three "Travel Kits" of N.C.G.T. publications and activities have been used at educational meetings and conferences over the United States. The Kits are available on a loan basis. The cooperation of the State Coordinators has been an important factor in carrying out phases of the work of the Secretary and also of various committee projects.

Miss Pauline Schwartz, State Teachers College at New Haven, Connecticut, chairman of the Committee on Promotion of Field and Travel Experiences for Teachers, urged administrators to come to the meeting for the evaluation of travel and field trips to be held at Atlantic City. The crediting of travel and field trips is an important factor in advancing salary increments and ratings of teachers. By December 15, brief reports of programs of 1950 summer field trips and travel sponsored by colleges are to be ready.

Henry J. Warman, Clark University, chairman of the Committee on Survey of Research in Geographic Education outlined the objectives of the Committee and reported on the work accomplished. (This Report has since appeared in the JOURNAL, December 1949, pp. 390-391.)

Miss Edna Eisen, Kent State University, chairman of the Committee on Preparation of Bibliographies and Lists of Reading Materials, Their Source and Use, reported on the status of work and had available for all present lists of books, magazines, and recreatory reading.

Mrs. Katheryne Thomas Whittemore of the New York State College for Teachers at Buffalo, chairman of the Committee on Preparation of Bibliographies and Lists of Maps, spoke on "Facilitating the Use of Maps."

President Shaw then announced the appointment of chairmen to the following committees: Tests, Miss Viola Bohn of Bismarck, North Dakota; Standards of Teacher Preparation and Certification, Miss Ina C. Robertson of Valley City, North Dakota; and

Geographic Education in Secondary Schools, Dr. Lillian Worley of the University of Tennessee at Knoxville.

The Resolutions Committee presented the following report and moved that it be accepted. The motion was accepted and carried.

REPORT OF THE RESOLUTIONS COMMITTEE

The Resolutions Committee presents the following resolutions to the National Council of Geography Teachers assembled in Cleveland, Ohio, November 25 and 26, 1949.

Be It Resolved that the National Council of Geography Teachers express appreciation:

To the Committee on Local Arrangements who so effectively arranged accommodations for the meeting and to the Hotel Cleveland and its staff.

To those who sponsored the tea: Departments of Geography of Kent State University, Oberlin College, and Western Reserve University.

To the President, Dr. Earl B. Shaw, for his leadership during 1949 and for the inspiring program enjoyed at Cleveland.

To Dr. Gilbert Grosvenor for the delightful and stimulating address and to the National Geographic Society for the rare opportunity to see the moving picture of the Nepal Expedition, and to Mr. Volkmar Wentzel, for the effective narration, which carried us with him to Nepal.

To the donor of the JOURNAL prizes for the generosity that brings benefit to the JOURNAL OF GEOGRAPHY, that rewards writers and that, thru the gracious naming of the prizes, compliments others that have contributed much to geography teaching.

For work on the new volume in the Geographic Education Series, *Geography in the High School:* to the High School Committee (Zoe E. Thralls, Elizabeth S. Lichton, Harry O. Lathrop) for selection and arrangement of material; to the Publications Committee (Melvina Svec, Loyal Durand, Jr., Henry Warman) for seeing the volume thru the press; to George J. Miller, who initiated the series and planned the earlier volumes, for his guidance; to McKnight and McKnight for continued cooperation in the Council's publication program; and last but not least, to the authors, each of whom, at some time in his busy career, paused long enough to write an inspiring or practical article for the JOURNAL OF GEOGRAPHY and thereby made the volume possible.

Be it further resolved that:

The National Council of Geography Teachers express to the family of Mark Jefferson its sympathy for their loss and its appreciation of the contributions of Professor Jefferson to the teaching of geography thru his papers and articles but especially as a great teacher who gave inspiration to other leading geographers of today. Second and third generation geographers give evidence of his work.

The National Council of Geography Teachers express to the family of Wallace W. Atwood its sympathy and its feeling of a community of loss. Dr. Atwood's pleasant and kindly personality and his broad concept of the challenge of our profession have directly inspired thousands of the geography teachers of America. His writing and administrative contributions have extended the horizons of geography in education. We value the memory of a great leader.

The National Council of Geography Teachers express to the family of W. Elmer Ekblaw its sympathy and its appreciation of the broad contributions of Dr. Ekblaw to our understanding of earth and man. Thru his breadth of interests and knowledge, his warmth of friendship and force of enthusiasm, and his masterful command of our language, Dr. Ekblaw has made a valued, indelible imprint on the teaching of geography in America.

The Resolutions Committee moves that these resolutions be adopted and printed in

our JOURNAL and that Secretary Svec be instructed to send appropriate letters to the individuals and organizations.

NORMAN CARLS
ETHEL TATHAM
KATHERYNE THOMAS WHITTEMORE,
Chairman

The formal report of the financial status of the National Council was not given due to the unavoidable last minute absence of the Treasurer. However, President Shaw reported that the mounting costs of publication of the JOURNAL incurred a deficit of more than $1500 for the fiscal year 1948-1949. Ways to remedy the situation were discussed. No action was taken as further study is needed.

Miss Zoe A. Thralls of the University of Pittsburgh, chairman of the Nominating Committee, presented the slate of candidates for 1950-1951:

President: Loyal Durand, Jr., University of Tennessee, Knoxville

First Vice-President: Harry O. Lathrop, Illinois State Normal University, Normal

Second Vice-President: Villa B. Smith, John Hay High School, Cleveland, Ohio

Secretary: M. Melvina Svec, State Teachers College, Oswego, N.Y.

Treasurer: John H. Garland, University of Illinois, Urbana

Executive Board Members: John W. Morris, University of Oklahoma, Norman; Mary Viola Phillips of New Kensington High School, Penna., Katheryne T. Whittemore of N.Y. State College for Teachers, Buffalo.

It was moved and seconded that the Secretary be instructed to cast the unanimous ballot for the candidates. Motion carried.

"Prospects for 1950" was the topic of the remarks made by President-elect Loyal Durand, Jr., who will assume office on February 1, 1950. He commended the high standards and accomplishments of the present administration under Dr. Shaw, and observed that the attendance at the meetings justified the National Council's having its annual convention alone rather than in conjunction with other groups. He observed that the geographers are a unified group.

The meeting adjourned at three thirty o'clock—closing the meetings of the thirty-fifth year.

Signed,

M. MELVINA SVEC, *Secretary*

A GRADUATION PROGRAM WITH GEOGRAPHY AS THE CORE THEME*

HENRY J. WARMAN
Clark University

Graduation exercises and the preparation for them can be both welcome and arduous tasks. Some graduations are prepared with no thought toward a central motive, while other graduation exercises are the culmination and climax of thoughtful preparation and discriminating guidance. For the efforts expended on the latter the rewards are many. The pupils are motivated and do their best work since a "day" is coming when their work will be on display and their performances audienced by those who are nearest them—the parents, teachers, and friends.

The following program represents what a geography centered program may be like. This program *has* been worked, applauded, and might well be emulated, not only in geography but also, with modifications, in English, History, Music, Arts, and even in some of the Physical Sciences.

DOWNING STREET SCHOOL
GRADUATION PROGRAM
CLASS OF JUNE, 1949

Processional	Class
Welcome	Mario J. Papale
Geography	Joanne E. Kapulka
Month of May	Class
Geography and Music	Elaine F. Willette
Four Leaf Clover	Class
Sing, Sing, Birds on the Wing	Rita I. Cox
Geography and Horses	William W. Warman
To a Wild Rose	Mixed Chorus
The Green Cathedral	Girls' Chorus
Geography and the Westward Expansion	Richard J. LaPlante
Ho! Westward Ho!	*Class*
Geography and the Airways	Donald S. Inglis
Presentation of Diplomas	
	Dr. Henry J. Warman, Professor of Geography, Clark University
Farewell	Mario J. Papale
Star Spangled Banner	Guests and Chorus
Recessional	Class

* The writer had the pleasure of participating in and witnessing this program and has prevailed upon the sponsor Miss Mary Ward, 8th Grade Geography Teacher of the Downing Street School, Worcester, Massachusetts, to agree to publication of this article.

The third item on the program "Geography" was a short informative talk on concepts of geography and an explanation of what the program was intended to do. It was a preparation for the program which the audience was about to enjoy. It may be noted that the songs—Month of May, Four Leaf Clover, Sing, Sing, Birds on the Wing, To a Wild Rose, The Green Cathedral, Ho! Westward Ho!—dealt with nature: the seasons, the vegetation, animals, the air, and movements of people. The walls of the auditorium were lined with pictures of birds, flowers, animals, planes in flight, and artistic representations of song ideas.

The speeches had been prepared by the pupils and research for the information took considerable time. The organization of the paper, the vocabulary, and the actual practice in delivery were started at least four weeks before the exercises. "Geography and Music," the fifth item on the program, was a delightful story completely memorized of Sibelius and his rather somber music. The piece Finlandia was pointed out particularly. The closing sentence of the talk was a jewel, "Maybe I haven't proved anything, but it's been fun trying." The talk on "Geography and Horses" traced the evolution of the animal as well as his distribution over the earth. His usefulness and the fluctuations and sporadic distribution today were brought out clearly. Again the final line was rather well turned, "I believe the *horse* is here to stay." "Geography and Westward Expansion" did exactly what could be expected—it interwove the history of the United States with the landscape. Pupil-made maps were on exhibit. This patriotic little speech was followed by vigorous presentation of Ho! Westward Ho!

The culminating talk "Geography and the Airways" not only gave the young airplane enthusiast a chance to show his interest in and knowledge of planes, but it did more. For the closing paragraph made the audience realize how close together, in terms of hours, the peoples of the world had come. The geographer, in the main address, continued this theme and developed it before awarding the diplomas.

A SIMPLE RAIN GAUGE

ELBERT E. MILLER AND ROBERT C. BURNHAM
University of Utah

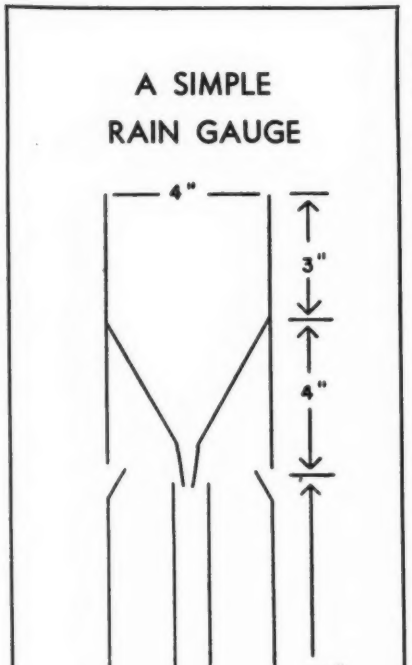
The problem of making a simple, yet efficient means of measuring rainfall at low cost is one that should interest all junior and senior high school or college teachers of geography, meteorology, or science. The Department of Geography at the University of Utah has devised one that meets all these requirements, costs less than two dollars, and can be made by a high school student. Practice in arithmetic is also gained from the project.

The materials required include three large, empty grapefruit or orange juice cans (those with the ridges around them are best), a tin-plated iron funnel four inches in diameter, a 100cc graduated cylinder, plus tin snips or can opener for cutting the cans and equipment for soldering the cans together. Because everything is already tin-plated, soldering is extremely easy.

In making the rain gauge, both ends are cut from one can and one end is cut from each of the other two. The funnel is slipped inside the can from which both ends have been removed. A small portion of the funnel may have to be removed with the can opener or tin snips if the funnel is too large, but the worker should try to leave a smooth edge as it will facilitate soldering. In order to prevent any of the rain from splashing out of the guage as it strikes the funnel, we put the funnel down to the second ring on the can—a distance of three inches. This also allowed a small portion of the funnel to protrude from the bottom of the can.

Next, the open ends of the other two cans are soldered together and one of the cans cut off to leave the proper height for the base. The correct height will vary with the height of the graduated cylinder—just high enough so the funnel will enter the cylinder about an inch when the cylinder is inside the base can. (See illustration.) The base of our gauge is ten inches tall. The top edge of the base can is crimped with pliers to make it smaller so the top can will fit down over it. This prevents rain which runs down the outside from entering the base can.

In operation, the rain gauge is set in an unprotected location and the base is tied to a short stake to prevent its being overturned. It should be at least as far from buildings, trees, etc., as they are tall. Rain entering the gauge is led through the funnel into the cylinder. If precipitation is heavy, it will overflow the



cylinder into the base, but it can be poured back into the cylinder for measuring. Approximate measurements can be made with a ruler in the base without using the cylinder, thus cutting the cost of the gauge to about fifteen cents. Accurate measurements depend upon calculating the ratio of size between the open surface of the can and the surface of the cylinder, using the formula, AREA OF CIRCLE = Pi $\times$ R^2. Thus if the open end of the top of the gauge is four inches in diameter and the inside of the cylinder is one inch in diameter, the ratio of their areas is 1:16 and one inch of rain will make sixteen inches in the cylinder. Calculations can also easily be made to secure a constant, which, when multiplied by the number of milliliters of water will give the inches of rainfall. In our gauges, multiplying the number of milliliters of water in the cylinder by 0.00453 gives us the number of inches of rain. No measuring is necessary. This figure will vary with the size of the cylinder, gauge.

The gauge should be read daily if there is rain, to prevent loss by evaporation. Or, a few drops of light motor oil can be added to the cylinder. This will prevent loss by evaporation and the level of the water in the cylinder can be read at the lower edge of the oil.

A record should be kept of precipitation and totals made at the end of each month. When there is danger of freezing, the cylinder can be left out of the instrument, and ice can be melted from the base can. Then measure by pouring the water into the cylinder. During periods of drifting snow, measurements will not be so accurate. Best results will be obtained if the cylinder and top of the gauge are left off and snow is collected and melted in the base. Comparison of snow depth in the base and on the ground nearby will indicate to the observer the accuracy of his readings during the storm.

CREATIVE WORK IN GEOGRAPHY

GUY MINADEO
Academy High School, Erie, Pennsylvania

Salt and flour relief map-making affords students of geography an excellent opportunity for creative work which may be undertaken individually or collectively. In the making of individual maps each student is supplied with an 8″ by 11″ sheet of cardboard. The back of a tablet may also be utilized, altho relief maps for best results should not be too small. On the cardboard is traced the outline of the map which is to be made. Each pupil is then supplied with a mixture of salt and flour in the ratio of two parts of salt to one part of flour by volume. Water is added and the mixture is stirred until it has the consistency of mortar. The pupil then spreads a layer of paste, about one-eighth of an inch thick, over the entire map. This first layer represents lowlands; the base of the map represents sea level. The highlands should then be built up in layers approximating one-eighth of an inch in thickness, and the number of layers to be added depends upon the altitude of the highlands. Care must be taken to allow each layer to dry thoroly before applying the next. Mountains and plateaus may be built true to scale, about 32,000 feet to the inch. Stake the cardinal points by driving into the base common, straight pins, adjusting the heights of the pins above the base so that you can build just above the tops of the pins to the required height. By this procedure the map is also reenforced. After the map hardens it may be painted with water colors, using the universal scheme of colors for showing relief. Individual maps are better if confined to one continent, a state, or group of states, a country, a county, or even a city or township.

A relief map of the world was made as a group project carried out by an eighth grade class. A piece of beaver board 4′ x 6′ was used as a base. A good world map was traced on it by means of carbon paper. Then the entire outline was covered with a thin layer of the salt and flour mixture. After this layer had been placed on the map, the pins for scaling were driven into the required height, using a scale of 32,000 feet to an inch. A good ruler was used to get the measurement as correct as possible. After the first layer was thoroly dry, the lakes, rivers, plateaus, and mountains were drawn on the map with colored pencils. The lakes and rivers were carved out to show a depression, while another layer was added to the plateaus and mountains. The work from here on was building layers, and marking in the remaining mountains

which are required, until the entire map was completed and ready for the paint brush.

In this type of learning situation the children are watching the world take form thru their own creative effort. The emphasis is entirely upon spontaneous child-activity and learning by doing. Map study, in particular, and all phases of geography, in general are made extremely interesting. In regard to objective achievements, tests showed that the classes working on map projects more than held their own with the classes using textbooks and reference materials; altho those using textbooks and reference materials, apparently spent much more time in study than did the classes working on the projects.

Learning exercises of this kind give a creative outlet to the class. Each individual has the opportunity to express originality, and in doing so contribute a share to the whole. The brighter pupils have an opportunity to show their leadership and organizational ability. The slower pupil has a chance to show his capabilities in the form of manual dexterity and artisanship.

The children were much happier and more interested in this type of learning activity than in other types. There is no doubt in the author's estimation that the following concepts of geography can be more efficiently and interestingly taught by this method: 1. General world relief; 2. Comparative size of continents; 3. Comparative size of oceans and bodies of water; 4. Latitude and longitude of cardinal points of interest; 5. Ocean currents; 6. Climate—thru coordinating winds and currents; 7. Relative location and distance between countries; 8. Altitude; 9. Products and transportation lanes.

This list contains common outcomes, but further consideration should be given to the fact that in working on this project, the child is put into a real life-situation of cooperation and civic pride. The project can readily acquaint the pupils with an interesting and educational hobby, as these maps can be made easily at home. The materials are so inexpensive that the hobby is within reach of all. The projects are not limited to map making alone, but may include such projects as building a framework of Niagara Falls and Gorge; of the Grand Canyon; of a drainage system; and of divides. Local topographical features with which the pupil is acquainted make equally interesting projects.

THE NATIONAL COUNCIL AT WORK

The following eighteen committees of the National Council of Geography Teachers are at work during 1950. The chairman of each committee, and the address of the chairman is listed first. Communications and suggestions from members of the National Council are welcomed at any time by the committees.

1. *Committee on the Distinguished Service Award.* Alison Aitchison, 508 Seerely Boulevard, Cedar Falls, Iowa; George B. Cressey, Harry O. Lathrop, J. Russell Whitaker, Otis W. Freeman, Loyal Durand Jr., M. Melvina Svec.
2. *Planning Committee.* Mrs. Katheryne T. Whittemore, Department of Geography, New York State College for Teachers, Buffalo, New York; Thomas F. Barton, Alice Foster.
3. *Publications Committee.* M. Melvina Svec, Department of Geography, State Teachers College, Oswego, New York; Loyal Durand, Jr., Henry J. Warman.
4. *Director of Public Relations.* J. Warren Nystrom, Department of Geography, University of Pittsburgh, Pittsburgh 13, Pennsylvania.
5. *Committee on Inquiries.* Zoe A. Thralls, Department of Geography, University of Pittsburgh, Pittsburgh 13, Pennsylvania.
6. *Research Committee.* Lillian Worley, Department of Geology and Geography, University of Tennessee, Knoxville 16, Tennessee; John Garland, Clyde Kohn, Zoe A. Thralls, Earl B. Shaw.
7. *Committee on Survey of Research in Geographic Education.* Henry J. Warman, School of Geography, Clark University, Worcester, Massachusetts; F. K. Branom, Otis W. Freeman, Ruth H. Stanley.
8. *Committee on Geographic Education in the Secondary School.* Lillian Worley, Department of Geology and Geography, University of Tennessee, Knoxville 16, Tennessee; Halene Hatcher, Ina C. Robertson, Frances M. Hanson, Flora Dutcher.
9. *Committee on Aviation and Geography.* Richard L. Tuthill, Department of Geography, University of Kentucky, Lexington, Kentucky; A. K. Botts, Clifford MacFadden, John W. Morris.
10. *Committee on Compilation of Suggestions and Bibliography for Use by Curriculum Committees.* Mamie L. Anderzhon, 112 North Marion Street, Oak Park, Illinois; Annice D. Elkins, Monica Kusch, Villa B. Smith.
11. *Committee on Color Transparencies.* Elizabeth Eiselen, Department of Geology and Geography, Wellesley College, Wellesley 71, Massachusetts; Adelaide Blouch, Fred Dohrs, Carol Mason, Marion Wright.
12. *Committee on Preparation of Lists and Bibliographies on Motion Pictures for Geography Teaching.* Thelma Waddle, Board of Education, Pittsburgh Public Schools, Pittsburgh, Pennsylvania; E. E. Hall, Lavina Henderson.
13. *Committee on Preparation of Bibliographies on Lists of Maps.* Mrs. Katheryne T. Whittemore, Department of Geography, New York State College for Teachers, Buffalo, New York; Margaret Chew, George Corfield.
14. *Committee on Preparation of Bibliographies and Lists of Reading Materials, Their Sources and Uses.* Edna Eisen, Department of Geography, Kent State University, Kent, Ohio; Lyda Belthuis, R. W. Frank, L. Isenogle.
15. *Committee on the Preparation of Lists and Bibliographies on Still Pictures.* Mary Jo Read, Department of Geography, State Teachers College, Milwaukee, Wisconsin; Byron Barton, Mary Beecher, Cyril Stout.
16. *Committee on Standards of Teacher Preparation and Certification.* Ina C. Robertson, Department of Geography, State Teachers College, Valley City, North Dakota.

17. *Committee on Tests.* Viola M. Bohn, 110½ Avenue C, Bismarck, North Dakota.
18. *Committee on Promotion of Field-Travel Experiences for Teachers.* Pauline Schwartz, Department of Geography, State Teachers College, New Haven, Connecticut; Adah Flemington, Paul Kinsel, G. Etzel Pearcy, W. Watterson.

Professor Clyde Kohn, who edited the 19th Yearbook, *Geographic Approaches to Social Education,* for the National Council of Social Studies reports that the yearbook is available in quantity for class use. The fine reception of this yearbook has been gratifying.

LOYAL DURAND, JR., *President*

EDITORIAL NOTES AND NEWS

Why isn't more experimental work on the problem of teaching geography in the United States going on at present? Are elementary and high school teachers too busy? Do geographers in teachers colleges and colleges of education have time for research or is their teaching load too heavy? If funds are needed, do teachers know about the Research Committee of the National Council of Geography Teachers and the funds under its management? How many awards did this committee grant last year? You recall that the purpose of the awards is (1) to promote training in geographic research, (2) to increase knowledge of the problems of geographic education and to seek solutions of such problems, and (3) to encourage research in geographic education in the educational institutions of our country.

By invention and use of machinery man is constantly attempting to overcome handicaps of the physical environment. India is now buying American heavy tractors in order to destroy kans grass. This gigantic weed-grass now occupies about three million acres in central India and makes the land at present unfit for cultivation. The Indian animal-powered plows are unable to budge this heavy grass. Not only is kans grass prolific but it has an enormous root system. The roots are seven feet long and near the surface of the ground about two inches in diameter. The only way to kill this weed is to pull it out of the ground and dry the roots in the sun. As quickly as approximately 350 tractors clear the fields of the kans grass, the land will be plowed and planted. If the seven-year campaign in central India is successful the same tractor methods will be used on remaining millions of acres of farmland still preempted by kans grass, the giant weed intruder of India.

According to a Twentieth Century Fund Survey, flood losses in the United States in recent years have averaged over $110 million annually.

DR. HANS LUNDBERG estimates that the airplane has made prospecting 500 times faster and 100 times cheaper.

In spite of man's rapid advancement in technology the oceans still remain challenging barriers to transportation and communication. At the present time television is unable to cross oceans. Consequently, its only land route to London, Paris and Berlin is northwest thru Alaska and Russia.

According to reports from Russia the "nest method" of tree planting is being used extensively there. In contrast with individual plantings followed in the United

States, the nest method involves the planting of seedlings in a small circle. Advocates of this method claim that experimentation shows that there is no conflict among seedlings and that a higher percentage live because they protect each other from weeds and grass.

I. W. WANDER, Citrus Experiment Station, Alfred, Florida has discovered the cause of water-repellent soil in Florida citrus groves. These soils which remain dry even after prolonged rainy periods form from the union of magnesium in commercial fertilizers with an undetermined fatty acid in the soil. The big handicap to the solution of the problem is that the fruit trees need the magnesium.

Volume VII, Number 1 of the *Geographic Quarterly* issued by the Department of Geography, Austin Peay State College, Clarksville, Tennessee has arrived. Harry L. Law is the editor.

It is reported that over nine million persons are employed in about one half million separate business firms connected with the automobile industry. If true, about 15 per cent of all our gainfully employed people are connected with this basic industry.

Word comes from Brazil that the Anderson, Clayton and Co., United States cotton firm has bought "great areas of land" in the Brazilian state of Mato Grosso with offices already set up in Campo Grande. Machinery and equipment are being imported into Brazil for complete mechanization of cotton farming on the new plantations.

The presence of five coveys of 125 gambel quails in the Lemhi drainage area of Idaho poses an academic question for sportsmen, wildlife experts and others interested in conservation. The typical habitat of gambel quail are the deserts of the Southwest. These plump, fast desert birds are supposed to be non-migratory and yet they are far away from their native home. Officials in the Idaho Game Department hope the birds will stay and multiply.

It is reported that electric output in the United States increased 58 times from 1902 to 1940.

How many teachers either avoided or failed to distinguish clearly for their pupils this fall the difference between dew, frost, rime and ice storm? Frost is not frozen dew since dew is water. Frost is formed from moisture passing directly from a gaseous to a solid state. Rime forms from freezing fog or mist and is feathery in structure. Glaze or ice storm is due to light rain freezing to colder objects at the earth's surface forming ice.

About six score or one hundred and twenty years ago James Carter proposed that geographic instruction should begin with a study of the home environment rather than of the solar system.

During 1949 Baía, Brazil celebrated its 400th birthday. This settlement which later became the first capital of Brazil was established nearly three-quarters of a century before the Pilgrims landed at Plymouth Rock.

A Twentieth Century Fund study estimates that nearly 20 per cent of the goods

consumed in this country in 1850 were imported as compared with a little more than 10 per cent in 1880 and 6 per cent in 1937.

Is it possible to teach fifth and sixth grade children in the United States how to read the topographic maps prepared by the United States Geological Survey? Has any objective scientific research been conducted in the United States? One of the three really large-scale experiments ever carried out in Britain on the teaching of geography involved 40,000 children and contour lines. The experiment attempted to discover the age at which children could realize what contour lines represented. Professor N. V. Scarfe in summarizing the results of the experiment writes, "The results tended to suggest that before the age of 10½ teaching of contour lines was not likely to be well suited to children's intellectual capacities. This confirmed the practical experience of teachers for such teaching had for years normally begun at 11. The war unfortunately put a stop to this fruitful and useful type of research into the age at which the various forms of map work should naturally be introduced."

Do you agree that "geography in the past has suffered because we have had regard to what we think children ought to know when they become adult, and not to what children want to know when they are young?"

One of the leading oil companies now has an engine in the experimental stage that will burn a wide variety of fuels without knocking. The principal involved is an air swirl in the cylinder which keeps the fuel from being ignited at the wrong time. This swirl works equally well with diesel-type and spark-ignition type engines. Fuels with octane and centane ratings between 0 and 100, and also such fuels as alcohol, benzene, kerosene, diesel fuel, tractor fuel, isopentane, and triptane can all be used in this revolutionary type engine. The only variation in engine operation in changing from one fuel to another is in the power output, which varies with the heating value of the fuel. If such an engine is developed commercially the results will be far-reaching. The trend would be away from the development of high octane fuels, and at the same time the percentage of crude oil usable for motor fuels would be increased from the present 54 per cent to an estimated 71 per cent.

The Division of Geography, Pennsylvania State College, has established a "Geographical Kodachrome Service" thru which it is making available for teachers approximately one thousand 2 x 2 slides. These slides cover selected areas of Alaska, Canada, United States and Mexico. A catalog has been prepared from which a selection may be made. These slides are for sale only. For detailed information, address Geographical Kodachrome Service, 200 East Irvin Avenue, State College, Pennsylvania.

The Virginia Geographical Society will hold its third annual meeting on April 22 at the Centerville School, Fairfax County, Virginia. President Hanson writes that they are trying an experiment this year by holding the meeting in the Centerville School other than a college or university. Among the major papers to be presented are the following:

"How to Use and Interpret a Map" by Raus M. Hanson; "Overview of the Actual Use of Maps in the Classroom—The Practical Side" by Mr. John Webner, Principal of Bailey's Elementary School, Fairfax County; Films (1) "How to Read a Map" for Primary (2) "Maps and Pioneers" for all grades by Col. S. P. Poole, Virginia Geographical Institute. In addition, Margaret Parrett of the Lee Jackson School will give a "Demonstration of Teaching Geography." Two three-hour tours will also be provided.

The 1950 officers of the Nebraska Council of Geography Teachers are: President, Mr. N. R. Diffenderfer, Nebraska State Teachers College, Kearney; Vice-President, Mr. John

M. Moulton, Hastings College, Hastings; Secretary-Treasurer, Miss Irma Warta, University Extension Division, Lincoln; Bulletin Editor, Miss Esther S. Anderson, University of Nebraska, Lincoln; and State Coordinator, Mr. John F. Gaines, University of Nebraska.

Miss Olga Anderson, Beatrice; Miss Dorothy Bell, Fremont; Mr. Fred G. Dale, Wayne State Teachers College; Mr. N. R. Diffenderfer, Nebraska State Teachers College, Kearney; Miss Flora Dutcher, McCook; and Mr. Lawrence L. Stofan, Alliance, are District Vice-Presidents.

At the recent meeting of the Association of North Dakota Geographers the theme was High School Geography. The following topics were discussed by three panels: Course of Study; Textbook Evaluation; and Making Geography Live. The association sponsored a field trip to Bald Hill Dam on the Sheyenne River. Present officers of the organization are: President, Wensel W. Moberg, North Dakota Agricultural College, Fargo; Vice-President, Bernt L. Wills, University of North Dakota, Grand Forks; Secretary, Miss E. Helen Iorns, Department of Public Instruction, Bismarck; Treasurer, Melvin E. Kazeck, University of North Dakota, Grand Forks; State Coordinator, Ina C. Robertson, State Teachers College, Valley City; and Editor of the ANDG Bulletin, Viola M. Bohn, Geography Instructor, Bismarck City Schools.

The Nebraska Council of Geography Teachers was organized over thirty-five years ago on November 9, 1914. It has published a bulletin since October, 1926 (World War II years excluded). Do you know the history of your state council, club or association and its publications?

Present officers of the Texas Council of Geography Teachers are: President, Dr. E. M. Scott, Sam Houston State College, Huntsville; Secretary, Miss Hazel P. Zorn, Burkeville; and Coordinator, Mr. T. Taylor Brown, East Texas State Teachers College, Commerce. The program of the recent meeting consisted of three lectures: Dr. W. T. Chambers, Stephen F. Austin State College, spoke on Teaching Geography in the Grades; Dr. E. M. Scott talked on English Countryside, and Mr. Taylor Brown reported on Progress in Geography in the Elementary School.

Do you have a copy of "Forest Resources of the World" by the Division of Forestry and Forest Products of the Food and Agriculture Organization of the United Nations?

As teachers, we often wonder just how effective and enduring our teaching efforts have been. If you need a "lift," read the essay entitled "Conservation of Our Soil Resources" written by Wilfred M. Schutz, a high school student, and published in the February, 1950 issue of *Soil Conservation*. This essay won first place in a nation-wide essay contest and brought Mr. Schutz an automobile.

The 1950 officers of the Indiana Council of Geography Teachers are: President, Daisy S. Buttgen, Clinton; Vice president, Gertha Sturgeon (northern Indiana); Benjamin Moulten, Butler University, Indianapolis (central Indiana); James L. Guernsey, Indiana State Teachers College, Terre Haute (southern Indiana); Secretary-Treasurer, Floy Hurlbut, Ball State Teachers College, Muncie; and Coordinator, John C. Finney, Anderson High School, Anderson.

Dr. Joseph A. Russell, Chairman of the Geography Department, University of Illinois, was out-of-state guest lecturer at the Indiana Council's last program meeting held in Indianapolis. His lectures were Geography and the Future of Japan and "How Your Classes Can Study Industrial Geography.

GEOGRAPHICAL PUBLICATIONS

Francis P. Shepard, **Submarine Geology.** Harper & Bros., New York, N.Y. $6.00

Here in textbook form for the first time is presented the subject matter of Oceanography, a new and active branch in the science of geology. The author presents the book with the frank admission that he does not have all the answers, but is merely presenting the results of a tremendous amount of research all of which has only scratched the surface in the realm of submarine geology. To the findings of older authorities in the field, the author has added his own experiences combined with the research of a great number of his peers. As a result, the topics in the book are dealt with quite thoroly if not exhaustively.

The first two chapters deal with introduction, history, and a discussion of equipment and methods used in exploration of the ocean floor. The subject matter of submarine geology starts with the third chapter. Waves and currents are treated first, and in the succeeding chapters the discussion proceeds in a natural manner thru the marginal zone of the ocean to the treatment of the floors of the ocean deeps. In the discussion of the marginal zone of the ocean, the author presents his proposed classification of Sea Coasts, and Shorelines.

At the end of each chapter there follows a summary of the present knowledge of the topic discussed in the chapter. Whenever controversy exists, a discussion of the conflicting hypotheses is presented. A good example is the discussion of the origin of coral reefs, where the Darwin Subsidence theory, and the Daly Glacial Control hypothesis are discussed and followed with the author's own conclusions on the development of coral reefs.

In the final chapter there is a summation of the material presented in the book, followed by a discussion of the possible useful application of the data of submarine geology. Here, the significance of glaciation in the production of distinct types of continental shelves, the petroleum possibilities on continental shelves, and the tectonic significance of continental slopes are discussed.

The book is very well planned. The type is of a size which permits easy reading, and finally, the material is so presented that it makes very interesting reading.

Indiana University CHARLES J. VITALIANO

Kohn, Clyde, Editor, **Geographic Approaches to Social Education.** 299 pages, National Council for the Social Studies, 1201-16th St., N.W., Washington 6, D.C. $3.00.

In recent years the terms social studies and social education have been used increasingly to describe a method whereby the subject-matters of history, geography, civics, economics, and the like have been combined and utilized as the means of helping students better understand themselves and their relationship to the complex environmental forces which condition their growth and development. The use of these terms has resulted in a good deal of confusion. Parents have complained that the schools are failing to teach their children history, geography, and civics as these subjects were taught when they went to school. Teachers, themselves, have been a bit confused and have fumbled a good deal in their efforts to achieve a more effective method of teaching without sacrificing the significant contributions that each one of the social studies should make to the education of their students.

The Nineteenth Yearbook of the National Council for the Social Studies should do much to dispel this confusion. The authors of the Yearbook are not starry-eyed educational theorists. All of them are reputable and recognized authorities in the field of

geographic education. While they offer no single pattern or program of organization and procedure they indicate clearly that the study of geography has value only to the extent that it contributes directly and significantly to social understanding and social competence.

The Yearbook presents the entire field of geographic education within a framework of goals that are common to all social education. Geography is no longer seen as an accumulation of facts and statistics about the earth. It is seen in proper perspective as an integral part of man's human problems, his culture, his history, his science, his technology, his resource use—in short as a contributing factor to a more comprehensive and useful understanding of man and the planet on which he lives.

At no point does the Yearbook interpret geography as an unrelated part of the curriculum. It is interpreted consistently as a vital part of all aspects of the curriculum with the basic goals of social education permeating the entire treatment.

The identity of geography as a science worthy of its place among the sciences is nowhere lost. All of the basic knowledges and skills are recognized for their full value but are achieved within a unified framework of an education which sees them for what they can contribute to man's good thru use rather than the mere accumulation of academic facts.

The Yearbook should be particularly helpful to elementary and secondary teachers. It presents first an excellent treatment of the general goals and objectives of Geographic Education and does it in a lively vital fashion. The more specific objectives are next explored with practical implementation suggested thruout. The tools to attain these goals are next presented with very useful suggestions as to their place in the curriculum. The latter part of the book considers the implications of all this for the curriculum in the elementary school, the secondary school and teacher training institutions.

This Yearbook should be widely used in pre-service and in-service programs of teacher education. It would do much to clarify a good deal of existing confusion and would contribute most effectively to improved teaching of the social studies.

Superintendent of Schools PAUL J. MISNER
Glencoe, Illinois

Jeannette Mirsky, **To The Arctic!** The Story of Northern Exploration from Early Times to the Present. 334 pages. Maps and photographs. New York, Knopf, 1948, $5.00 net.

Contemporary strategic emphasis on the Arctic region is reflected in increased popular interest in the area. Teachers of geography could formerly, like the makers of Mercator maps, leave most of the polar regions out of consideration. They must now be prepared to answer questions not only about the first journey to the North Pole, but also about the Soviet Northern Sea Route, agriculture in Alaska, weather stations in Greenland, new maps of northern Canada, and many other remote developments.

To the Arctic! is the best available source book on the opening up of the northern regions, from the days of Ancient Greece to modern polar flights. The author's approach is both historical and regional; that is to say, she traces the exploration of the Far North from the earliest times, but does it by areas such as North America, northern Russia, and Greenland. Her facts have been carefully checked, and this reviewer has detected no errors in them. She has used freely the actual words of explorers who have published reports, has reproduced illustrations from the original books, and has also provided new maps drawn to show the more important expedition routes.

To the Arctic! has three useful appendices, of which the third, dealing with the chronology of northern exploration, is especially valuable. References are grouped together at the end under the twenty-one chapter headings. These provide an adequate bibliography for anyone wishing to read original source material on the North.

In his introduction, Dr. Vilhjalmur Stefansson points out that the first edition of this work (it appeared under the title, *To the North!* in 1934) was ahead of its time, in that the public was not then alert to the great contemporary significance of the Arctic. That early edition was, interestingly enough, withdrawn shortly after publication because of a libel action threat by the late Dr. Frederick A. Cook, upon whose reported polar travels Miss Mirsky cast certain doubts.

Students and teachers of geography anxious to be fully informed about the background of current events in the North should certainly read *To the Arctic!* Having done so, they will undoubtedly continue to make frequent reference to it as an accurate and detailed source of geographical and historical information.

Dartmouth College TREVOR LLOYD

NEW PUBLICATIONS

Erich H. Jacoby. **Agrarian Unrest in Southeast Asia.** 287 pp. Columbia University Press, New York. 1949. $4.00.

The author endeavors to show the relationship of agrarian unrest to the economic conditions that prevail in Southeast Asia. He develops the importance of economic diversification in the future development of the region. The area is treated by regions, so that one may readily utilize the results of his study for a particular country, e.g. Java or Siam.

Birch, T. W., **Maps,** Oxford University Press, 114-5th Ave., New York 11, New York. 1949. 238 pages, 99 illustrations. $4.00.

While this volume was developed particularly for use in the schools of England, it should be available to American students in all of our libraries. It is an account of topographical and statistical mapping. Modern maps are treated to considerable length and preparation is centered around the instruments involved. The volume concludes with chapters dealing with map reading and geographical interpretation of landscapes. Part II deals with statistical maps, the preparation of graphs, and diagrams and diagrammatic maps.

Finch, Vernor C. and Glenn T. Trewartha, **Elements of Geography,** McGraw-Hill Book Company, Inc., New York. 1949. 711 pages, 452 maps, 8 plates. $6.00.

This is a thoroly revised edition of the well-known text by the same authors. Part I deals with the physical elements of geography and Part II with the cultural elements of geography. The treatment differs from the usual form by starting out with the discussion of climate and weather followed by land forms, and with earth resources. The college instructor will certainly welcome this new edition and high school teachers will find it a mine of information.

Cotton, C. A., **Landscape,** John Wiley & Sons, Inc., New York 16, New York. 1949. 493 pages, 375 figures. $10.00.

This new edition has been materially revised and enlarged. Dr. Cotton certainly possesses the command of language that enables him to describe, in a very highly effective manner, the forces of Nature as those forces move over the landscape of the earth. This volume should be a standard reference in all libraries.